

Application Number 09/631,312
Response dated April 30, 2004
Responsive to Office Action of February 3, 2004

REMARKS

This paper is being filed in response to the Office Action dated February 3, 2004. Applicants have not amended the claims. Claims 1, 3-12, 14-37 and 39-63 are still pending.

Preliminary Matter - Information Disclosure Statement

The Examiner has not yet returned an initialed copy of the 1449 form provided with the Information Disclosure Statement submitted May 3, 2001. Applicants specifically requested an initialed copy of this 1449 in the last response. Applicants once again respectfully request that the Examiner consider the reference cited in the Information Disclosure Statement submitted May 3, 2001, and forward an initialed copy of the pertinent 1449 form in the next communication.

Applicants also note that another supplemental Information Disclosure Statement (IDS) was filed shortly before the submission of this response. This supplemental IDS cited the prosecution history of a European counterpart application and a reference which was first cited against the European counterpart application in the International Preliminary Examination Report (IPER). Applicant respectfully requests consideration of the supplemental IDS by the Examiner.

Request for Supervisory Review

Before addressing the specific grounds of rejection advanced by the Examiner in the Office Action, Applicants wish to comment on the lack of progress in this application. This response is directed to the third, non-final Office Action in this application. With each Office Action, the Examiner has withdrawn the previous grounds of rejection and asserted new grounds of rejection. In the current Office Action, the Examiner has again resorted to hindsight-based analysis in view of Applicants' disclosure, rather than proper motivation in the prior art. The newly applied Edge reference (USPN 6,027,201) has been of record in this application since Applicant's Information Disclosure Statement of November 17, 2000. Yet, the Edge reference has been applied for the first time in this third, non-final Office Action. More importantly, as explained below, Edge does not contribute anything to Hilliard that would support a prima facie case of unpatentability with respect to Applicants' claims. Pursuant to MPEP § 707.02, in the

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interest of expediting prosecution, Applicants respectfully request that the Supervisory Patent Examiner in charge of this application inspect the prosecution history and review the applicable rejections.

Claim Rejections

In the Office Action, the Examiner rejected claims 1, 3-12, 14-37 and 39-63 under 35 U.S.C. 103(a) as being unpatentable over Hilliard et al (USPAP, US 2002-0080168) in view of Edge (USPN 6,027,201). Applicants respectfully traverse the rejections. The applied references fail to disclose or suggest the inventions defined by Applicants' claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

In support of the rejections, the Examiner cited Hilliard et al. as disclosing the invention substantially as claimed. With respect to claim 1, the Examiner characterized Hilliard et al. as disclosing the obtaining of information characterizing the color response of a display device associated with a client residing on a computer network by guiding the client through a color profiling process that includes estimating the gray balance of the display device. The Examiner recognized that Hilliard et al. "does not explicitly disclose that 'the color profiling process includes estimating the gray balance of the display device.'" However, the Examiner cited Edge as teaching a color profiling process for a display device that includes estimating the gray balance. The Examiner reasoned that a person with ordinary skill in the art would have modified the system of Hilliard et al. with the color profiling process of Edge to arrive at Applicants claimed invention.

The Examiner stated that the modification of the Hilliard et al. system would have been obvious:

in order to effectively achieve desired output color rendition even with the imaging device in an (sic) un-calibrated condition, as such improvement is also advantageously desirable in the teaching of Hillard et al. for producing proper color calibrated images, modified color profile data and color corrected images to a user when the user's computer and its associated devices are not calibrated and/or characterized, or the calibration and/or characterization data is not available, thereby providing completely accurate color correction to a user over a network (citing the Abstract of Hillard et al.).

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The Examiner then continued by stating:

Furthermore, having a gray balancing step in the color profiling process is commonly well-known in an analogous art in order to render accurate color images (citing nothing to support for this statement).

Based on these observations, the Examiner concluded that a person with ordinary skill in the art would have been motivated to incorporate the color profiling process of Edge, which includes estimating a gray balance, into the Hillard et al. system.

Applicants respectfully submit that the Examiner's conclusion of obviousness is improper. Edge does not disclose gray balance estimation in color profiling of a display device, as suggested by the Examiner. On the contrary, Edge describes measurement-based techniques for an imaging device that involve direct measurements of the device output in order to facilitate calibration of the imaging device, e.g., by adjusting entries of a color correction lookup table of the imaging device.

In fact, Edge does not describe gray balance estimation, whatsoever, but merely indicates that it is critical to obtain the same gray balance as that obtained for the calibrated condition of the imaging device. See column 15, lines 63-67, which was relied upon by the Examiner. In this sense, Edge may describe an implicit measurement of the gray balance, but clearly lacks any teaching or suggestion of device profiling techniques that rely on estimations of gray balance obtained from a client residing on a computer network.

Applicants' claims require obtaining information characterizing the color response of a display device associated with a client residing on a computer network by guiding the client through a color profiling process that profiles the color response of the display device, wherein the color profiling process includes estimating the gray balance of the display device. Applicants specification specifically describes that when the information obtained from a client in this color profiling process includes a estimation of gray balance, the color profiling process can be improved in the network setting. In particular, gray balance estimation can reduce the number of "clicks" that the user is required to make in order to achieve accurate color profiling of a display device on a computer network. As one example, when the color profiling process includes an estimation of black point, coarse gamma, fine gamma and gray balance, the color profiling

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process can be executed in as few as four "clicks" at the client residing on a computer network. See Applicants' specification, page 23, lines 18-31.

The incorporation of any of the teaching of Edge into the Hilliard et al. system would have made no sense to one of ordinary skill in the art. For example, Edge is totally unrelated to the techniques described in Hilliard et al., which provide for device characterization over a network. Again, Edge describes a measurement and calibration process for imaging devices, such as printers that include a color correction lookup table. In particular, Edge specifically measures the output at the device, and performs calibration on the device based on the measured output. A person with ordinary skill in the art would not have looked to Edge in order to improve upon networked color profiling of display devices on a computer network, as taught in Hilliard et al. For example, the measurement of imaging device output, as taught by Edge, would be generally incongruent with the context of the Hilliard et al. measurement techniques insofar as networked devices are typically remotely located. It is unclear how a person executing the Hilliard et al. system could or would perform any measurements on a display device. Hilliard et al. relies on user input, not measurements of the device output as taught by Edge. It is particularly unclear how a server computer, for example, could perform the techniques of Edge with respect to a client device of a networked system like that of Hilliard et al.

Moreover, Edge does not even disclose a color profiling process that includes estimating the gray balance of the display device. Edge describes the measurement of imaging device output, and mentions gray balance by stating that "the highlight to three-quarter tone region is considered most critical for accurate gray balance." See column 16, lines 7-10. This passage, which was relied upon by the Examiner, has nothing to do with gray balance estimation, much less a color profiling process for client devices on a computer network.

In addition, Edge provides no suggestion of the desirability of modification of Hilliard et al. to arrive at the claimed invention. A person with ordinary skill in the art would have recognized that the teachings of Edge and Hilliard et al. concern different problems and are totally unrelated. Moreover, a person with ordinary skill in the art would have found no teaching in Edge that would have suggested modification of Hilliard et al. to obtain information characterizing the color response of a display device associated with a client residing on a computer network by guiding the client through a color profiling process that includes estimating

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the gray balance of the display device, as defined by claims 1-43. Not only is this feature lacking from Edge, but also, a person with ordinary skill in the art would have considered the teaching of Edge as a whole, totally inapplicable to the system described by Hilliard et al.

Similarly, with reference to the requirements of claims 44-51 and 60-63, Edge provides no teaching that would have suggested modification of Hilliard et al. to obtain information characterizing the color response of a display device associated with a client residing on a computer network, wherein the information includes information based on gamma, gray balance and black point.

Further, Edge et al. does not disclose or suggest anything that would have led a person of ordinary skill in the art to modify Hilliard et al. to profile the color response of a display device by estimating black point, coarse gamma, fine gamma based in part on the coarse gamma, and a gray balance, as set forth in claims 52-59.

Applicants generally dispute the Examiner's conclusion that Edge discloses any techniques for estimating gray balance, or estimating a black point, a coarse gamma, or a fine gamma. Edge does not estimate these parameters; rather, Edge specifically measures device output and then adjusts entries of a color correction lookup table for calibration of the imaging device. Nevertheless, to the extent that Edge could be reasonably construed as disclosing any techniques for estimating gray balance, or estimating a black point, a coarse gamma, or a fine gamma, the techniques in Edge pertain to the generation of patches at the imaging device for measurement. For this reason, the teaching of Edge clearly provides no insight on the desirability of a gray balance estimation of display devices that communicate over a computer network. Again, it is particularly unclear how a server computer could perform the techniques of Edge with respect to a client device of a networked system like that of Hilliard et al.

Whereas Applicants' claims recite characterizing the response of a display device and correcting color images, Edge is concerned with calibration techniques that involve printing patches and evaluating the prints in order to adjust entries of a lookup table. Accordingly, even if Hilliard et al. were somehow modified in view of Edge, the resulting system would not even conform to the requirements of Applicants' claims.

Applicants submit that the incorporation of any measurements performed during device calibration, as taught by Edge, into the Hilliard et al. system, simply would not result in the

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claimed invention. The pending claims require estimating the gray balance of a display device, which is not disclosed or suggested in either Edge or Hilliard, much less the combination of these references.

Applicants also take issue with the Examiner's reliance on vague motivation, which has no nexus to the required modifications proposed by the Examiner. Like in the previous Office Action, a general desire to achieve more accurate color, identified by the Examiner in support of the obviousness of modifying Hilliard et al. in view of Edge, is clearly inadequate. Applicants have already addressed this point in the response to the previous Office Action. As pointed out by Applicants in the previous response, even if the vague desire to achieve more accurate color exists in the prior art, which it certainly does, such a desire is universal and provides no special insight into the particular modifications to Hilliard et al. that would have been necessary to arrive at the claimed invention.

For example, this vague notion that improved color accuracy is desirable says nothing about the desirability of a gray balance estimate in a color profiling process for display devices over a computer network. Accordingly, if one of ordinary skill in the art were seeking improved color accuracy generally, it is still totally unclear why the person would implement a gray balance estimate in a color profiling process for display devices on a computer network, without access to Applicants' disclosure. Hilliard et al. lacks any teaching of gray balance estimation whatsoever, and Edge merely mentions that it is critical to obtain the same gray balance in order for a device to be properly calibrated.

Applicants' disclosure is the only reference of record that identifies the advantages associated with implemented gray balance estimation in a color profiling process for display devices on a computer network. For example, as described in Applicants' specification, a gray balance estimate may be effective in simplifying a color profiling process for display devices, such as one that relies on user input in a computer networked setting. Moreover, a gray balance estimate of a display device may help reduce the number of clicks required for accurate color profiling of the display device. Any appreciation of such advantages are completely lacking in the prior art of record. Thus, Applicants' specification appears to be the only reference of record that would have motivated a person of ordinary skill in the art to incorporate such a feature in the color profiling process for display devices associated with clients of a computer network.

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However, Applicants' own disclosure cannot be relied upon in support of a prima facie case of unpatentability.

In addition to the features addressed above, which are lacking from the Hilliard et al. and Edge references, various additional limitations are likewise neither taught nor suggested by those references. As one conspicuous example, Applicants are unable to find any mention of the estimation of a coarse gamma for a display device, and a fine gamma for the display device based in part on the coarse gamma, in passages of Hilliard et al. or Edge identified by the Examiner. This feature is required by claims 7-11, 32-36, and 52-59.

The Examiner, in rejecting the claims that include this feature, recognized that Hilliard et al. does not disclose two groups of gamma, i.e., a coarse gamma and a fine gamma. The Examiner stated that Edge discloses this feature, however, citing a vague reference to "fine tuning." The Examiner did not identify any specific passage of Edge that discloses this "fine tuning," which the Examiner construes as being the same the use of a coarse gamma and a fine gamma estimated based in part on the coarse gamma.

Applicants have examined the Edge reference to try and identify what passage of Edge the Examiner was citing when the Examiner stated: "see fine tune device in Edge." As best as Applicants can discern, the Examiner appears to be citing a short passage of Edge at column 8, lines 10-13, which merely states that "further 'fine tune' recalibration may be required by more stringent users to ensure adjustments are truly optimized for the different color transformation functions." This passage, however, does not disclose or suggest the estimation of a coarse gamma for a display device, and a fine gamma for the display device based in part on the coarse gamma. In fact, this passage does not even appear to be contemplating estimation of gamma, whatsoever, even in the measurement and calibration context of the Edge reference, much less estimation of a coarse gamma and a fine gamma based on the coarse gamma in a display device of a computer network, as required by Applicants' claims. The rejections of claims 7-11, 32-36, and 52-59 are not supported by substantial evidence on the record and must be withdrawn.

Also, claims 9, 34, and 54 recite features relative to estimation of a single coarse gamma for the red, green and blue channels. In addition, claims 10, 35, and 55 recite features relative to estimation a single fine gamma for the red, green and blue channels. The passages of Hilliard et al. cited by the Examiner in rejecting these claims simply do not disclose or suggest the

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estimation of a single coarse gamma for the red, green and blue channels, or the estimation of a single fine gamma for the read, green and blue channels.

The Examiner also mentioned Engeldrum et al. USPN 5,638,117, and indicated that this patent is incorporated into the teaching of Hilliard et al. Applicants acknowledge that Engeldrum et al. is mentioned in Hilliard et al., but dispute that the disclosure of Engeldrum et al. is incorporated into the teaching of Hilliard et al. There appears to be no incorporation by reference of Engeldrum et al. in Hilliard et al. In any case, the teaching of Engeldrum et al., like Hilliard et al., does not disclose or suggest the estimation of a single coarse gamma for the red, green and blue channels, or the estimation of a single fine gamma for the read, green and blue channels. The specific quote cited by the Examiner in rejecting claims 9-12 talks about displaying different screens for each of the colors. Thus, it seems that the passage quoted by the Examiner contemplates estimation of different variables for the different channels, and not the estimation of a single coarse gamma for the red, green and blue channels, or the estimation of a single fine gamma for the red, green and blue channels, as claimed.

Moreover, claims 11, 36, and 56 specify features relative to estimation of gray balance and individual gammas. Aside from the lack of any teaching relative to fine gamma and gray balance estimation, Applicants believe that the applied references also fail to suggest these additional features as well.

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Conclusion

In this response, Applicants have focused on certain features of the claimed invention to demonstrate the clear deficiencies in the prior art of record, and the lack of support for a prima facie case of unpatentability. At the same time, however, Applicants in no way acquiesce to any of the Examiner's rejections or any of the Examiner's factual findings with respect to the scope and content of the prior art.

All claims in this application are in condition for allowance. Applicants respectfully request reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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